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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/846,222	04/30/2001	Robert Hundt	10005459-1	7243

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HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

NAHAR, QAMRUN

ART UNIT PAPER NUMBER

2191

DATE MAILED: 10/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/846,222

Applicant(s)

HUNDT, ROBERT

Examiner

Qamrun Nahar

Art Unit

2191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-11 and 13-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11 and 13-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

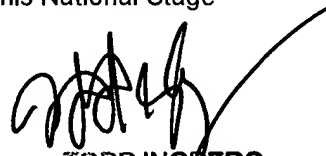
### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

  
TODD INGBERG  
PRIMARY EXAMINER

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This action is in response to the request for further clarification (see Examiner's Interview Summary, Mailed on 08/10/2005).
2. The rejection under 35 U.S.C. 102(e) as being anticipated by Gorshkov (U.S. 6,490,721) to claims 8-9 and 17-18 is moot in view of new ground(s) of rejection.
3. The rejection under 35 U.S.C. 103(a) as being unpatentable over Gorshkov (U.S. 6,490,721) in view of Kim (U.S. 6,003,143) to claims 7 and 16 is moot in view of new ground(s) of rejection.
4. The objection to claims 7-9 and 16-18, as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, is withdrawn in view of new ground(s) of rejection.
5. Claims 1-2, 4-11 and 13-28 are pending.
6. Claims 1-2, 4-6, 10-11, 13-15 and 19-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Gorshkov (U.S. 6,490,721).
7. Claims 7-9 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorshkov (U.S. 6,490,721) in view of Leask (U.S. 6,412,106).

### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-2, 4-6, 10-11, 13-15 and 19-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Gorshkov (U.S. 6,490,721).

**Per Claim 1:**

The Gorshkov patent discloses:

**- a method for augmenting a debugger having debugging functionality used to debug a first program** (“A first aspect of the invention is a method for debugging a computer program comprising the steps of developing a debugging subprogram having a user action for debugging a target program, loading the target program for execution, inserting a call to the debugging subprogram into a memory image of the target program during the loading step, and executing the target program.” in column 2, lines 58-64)

**- providing the debugger; providing a second program having second-program functionality** (“Figure 1 illustrates the primary components of the preferred embodiment. Target program 10 is the existing program in executable format that is to be debugged. ... User action libraries 12 are created by compiling one or more debugging subprograms 16 (containing user actions) into linkable libraries (similar to Dynamic Link Library (DLL) in a Windows<sup>TM</sup> environment). This compiling procedure is accomplished by action compiler 14 which compiles the source code of subprograms 16, which are written in ANSI C for example, into machine code of user action libraries 12. These files together with target program 10 are input to dynamic

action linker 18. ... Dynamic action linker 18 reads target program 10 and user action libraries 12 and creates two processes. A first process 20 created by dynamic action linker 18 consists of target program 10 and the debugging user actions needed from user action libraries 12. A second process 22 created by dynamic action linker 18 handles requests from process 20, to modify code locations in process 20 as described in detail below.” in column 3, lines 29-53; second process 22 is interpreted as the second program having second-program functionality)

**- and providing integration code for invoking a piece of code to perform a task in response to a debugging command, based on types of a breakpoint; wherein if the breakpoint is a debugging breakpoint, then the piece of code is selected from the debugging functionality, else if the breakpoint is an instrumentation breakpoint, then the piece of code is selected from the second-program functionality** (“In step E, child process 22 has received the acknowledgment from parent process 20 of a successful attachment and continues on to patch into parent process 40 a call to the dynamic user actions runtime start routines, i.e. the debugging actions. In particular, calls to user actions in user action libraries 12 are inserted in the memory image of target program 10 (which is running as will be seen below) and user action libraries 12 are loaded into RAM in a separate area. In step F, child process waits for a new request for patching service from parent process 20. In step G, child process 22 has received a request from parent process 20 and executed the request. Steps F and G are repeated until the task is terminated by parent process 20 ... FIG. 3 illustrates Step E of FIG. 2, i.e., patching of dynamic user actions into target program 10 in detail. Child process 22 created by dynamic action linker 18 must patch the memory image of target program 10 so that it will call the newly loaded user

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action routines. In step E1, child process 22 allocates space for the patch in the patch area in parent process 20. In step E2, child process 22 replaces an instruction (or instructions) at the requested program location with a branch instruction to the patch area. In step E3, child process 22 generates code to call the user action.” in column 3, line 67 to column 4, lines 1-13; and column 4, lines 29-38; when the child process 22 receives a request for patching from the parent process 20, the location of the parent process 20 where the request is being made from is the location of the instrumentation breakpoint. If the debugging actions have already been integrated within the target program 10, the request for patching is not made. That is, the target program continues to debug using the debugging actions that has already been integrated; the debugging breakpoint has already been inserted and debugging functionality is selected.).

**Per Claim 2:**

The Gorshkov patent discloses:

- **further comprises the step of using an instrumentor as the second program** (column 4, lines 29-38).

**Per Claim 4:**

The Gorshkov patent discloses:

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- **further comprises the step of making the piece of code an executable part of the first program** (column 4, lines 29-38; the debugging actions are patched/instrumented into the target program).

**Per Claim 5:**

The Gorshkov patent discloses:

- **further comprises the step of using a trampoline as the piece of code** (column 4, lines 29-38; the child process 22 is the piece of code that is invoked when instrumentation is required; the address of the child process 22 is used as a trampoline).

**Per Claim 6:**

The Gorshkov patent discloses:

- **wherein the debugging command is selected from one or a combination of: input from a user using the debugger; a script file associated with the first program; and a configuration file associated with the first program** (column 3, lines 29-53; user action libraries are input from a user; furthermore, the claim recites “one or a combination of”, which means only one limitation from the list is required to meet the requirement of the claim.).

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**Per Claims 10, 11 & 13-15:**

These are system versions of the claimed method discussed above (claims 1-2 and 4-6, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Gorshkov.

**Per Claims 19 & 20:**

These are computer-readable medium versions of the claimed method discussed above (claims 1-2, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Gorshkov.

**Per Claim 21:**

The Gorshkov patent discloses:

**- wherein the piece of code is stored in a library (column 4, lines 4-8).**

**Per Claim 22:**

The Gorshkov patent discloses:

**- wherein the integration code generates the piece of code (column 4, lines 4-8).**

**Per Claim 23:**



The Gorshkov patent discloses:

- wherein the integration code keeps track of modifications to the first program, and, if appropriate, undoes the modifications (column 4, lines 48-53).

**Per Claim 24:**

The Gorshkov patent discloses:

- wherein in a loop of more than one time, execution of code in the loop is transferred to the debugger one time (column 4, lines 57-65).

**Per Claims 25-28:**

These are system versions of the claimed method discussed above (claims 21-24, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Gorshkov.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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11. Claims 7-9 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorshkov (U.S. 6,490,721) in view of Leask (U.S. 6,412,106).

**Per Claim 7:**

The rejection of claim 1 is incorporated, and further, Gorshkov does not explicitly teach the step of inputting the debugging command at a debugging prompt provided by the debugger. Leask teaches the step of inputting the debugging command at a debugging prompt provided by the debugger (column 15, lines 31-36).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Gorshkov to include the step of inputting the debugging command at a debugging prompt provided by the debugger using the teaching of Leask. The modification would be obvious because one of ordinary skill in the art would be motivated to debug an application program without being required to halt the program (Leask, column 7, lines 62-65).

**Per Claim 8:**

The rejection of claim 1 is incorporated, and further, Gorshkov does not explicitly teach the steps of: integrating the debugger, the second program, and the integration code into a combined code; and embedding the combined code into a language environment. Leask teaches the steps of: integrating the debugger, the second program, and the integration code into a combined code; and embedding the combined code into a language environment (column 12, lines 18-36).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Gorshkov to include the steps of: integrating the debugger, the second program, and the integration code into a combined code; and embedding the combined code into a language environment using the teaching of Leask. The modification would be obvious because one of ordinary skill in the art would be motivated to debug a program in a graphical environment (Leask, column 7, lines 44-51).

**Per Claim 9:**

The rejection of claim 8 is incorporated, and Leask further teaches the step of using an Integrated Development Environment as the language environment (column 12, lines 18-36).

**Per Claims 16-18:**

These are system versions of the claimed method discussed above (claims 7-9, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

***Conclusion***

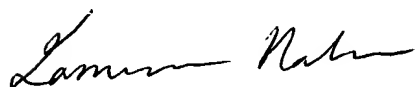
12. Any inquiry concerning this communication from the examiner should be directed to Qamrun Nahar whose telephone number is (571) 272-3730. The examiner can normally be reached on Mondays through Fridays from 9:30 AM to 6:00 PM.

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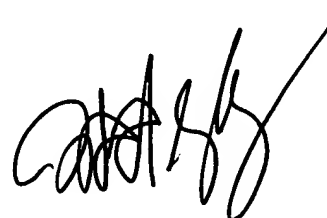
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y Zhen, can be reached on (571) 272-3708. The fax phone number for the organization where this application or processing is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



QN  
October 19, 2005



**TODD INGBERG  
PRIMARY EXAMINER**